

CYTOTOXIC EFFECT OF EXTRACTS OF
ACANTHOPHOEBA CASTELLANA AND
ACANTHOPHOEBA SR. ON HELA CELLS.

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Cytotoxic effect of lysates of *Acanthamoeba castellanii* and
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**CYTOTOXIC EFFECT OF LYSATES OF *ACANTHAMOEBA CASTELLANII*
AND *ACANTHAMOEBA SP.* ON HELA CELLS**

By:
Farhana binti Abdul Majid

A research report submitted in partial fulfillment of
the requirement for the award of the degree of
Bachelor of Science (Biological Sciences)

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**PENGAKUAN DAN PENGESAHAN LAPORAN
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Adalah ini diakui dan disahkan bahawa laporan penyelidikan bertajuk: **CYTOTOXIC EFFECT OF LYSATES OF ACANTHAMOEBA CASTELLANII AND ACANTHAMOEBA SP. ON HELA CELLS** oleh **FARHANA BINTI ABDUL MAJID**, no. matrik: **UK12480** telah diperiksa dan semua pembedaan yang disarankan telah dilakukan. Laporan ini dikemukakan kepada Jabatan Sains Biologi sebagai memenuhi sebahagian daripada keperluan memperoleh ijazah **SARJANA MUDA SAINS (SAINS BIOLOGI)**., Fakulti Sains dan Teknologi, Universiti Malaysia Terengganu.

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DECLARATION

I hereby declare that this thesis entitled Cytotoxic Effect of Lysates of *Acanthamoeba castellanii* and *Acanthamoeba sp.* on HeLa Cells is the result of my own research except as cited in the references.

Signature :..........
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ABSTRAK

Kini, banyak kajian telah dilakukan oleh para penyelidik untuk mencari dan menghasilkan ejen anti- kanser yang baru. Kanser servik adalah salah satu kanser yang sering dialami di kalangan kaum wanita dan menjadi punca kedua terbesar kes kematian wanita seluruh dunia setiap tahun. Ujian sitotoksik yang telah dilakukan oleh Iliana (2005) menunjukkan bahawa lisat bagi spesies *Acanthamoeba* dilabelkan sebagai lisat AK mempunyai potensi sebagai ejen anti- kanser kerana CEM-SS (T Lymphoblastic Leukemia) menunjukkan kesan sitotoksik selepas didedahkan pada lisat ini. Kajian sekarang dilaksanakan untuk melihat kesan sititoksik pada sel HeLa selepas dirawat dengan lisat *Acanthamoeba castellanii* dan *Acanthamoeba sp.* dan teknik Trypan Blue Exclusion telah dilakukan untuk menentukan nilai IC₅₀ bagi kedua- dua lisat. Pemerhatian daripada kajian ini menunjukkan kesan sitotoksik menyebabkan sel HeLa membulat, tidak melekat pada permukaan dan memecah. Bilangan sel HeLa telah menunjukkan pengurangan dengan penambahan kepekatan kedua- dua lisat yang digunakan. Nilai IC₅₀ bagi lisat *A. castellanii* dan *Acanthamoeba sp.* ialah 10µg/mL dan 12.60µg/mL. Ini menunjukkan bahawa lisat *A. castellanii* lebih kuat kesannya berbanding lisat *Acanthamoeba sp.* terhadap sel HeLa dan ia lebih berpotensi untuk menjadi ejen anti- kanser servik pada masa hadapan.

ABSTRACT

Today, many studies have been conducted by researchers to discover and develop new anti- cancer agents. Cervical adenocarcinoma is one of the most common neoplastic diseases which affecting women, and is the second biggest cause of female cancer mortality worldwide. Cytotoxicity test that done by Iliana (2005) showed that lysate of *Acanthamoeba* labeled as AK lysate has potential as anti-cancer agent since the CEM-SS (T Lymphoblastic Leukemia) showed the cytotoxicity effect after exposure to this lysate. The present study was conducted to observe the cytotoxic effect on HeLa cells after treated with lysates of *A. castellanii* and *Acanthamoeba sp.* and the IC₅₀ values of the lysates against HeLa cells was determined by using Trypan Blue Exclusion Method. Observation from this study showed that the cytotoxic effect of *Acanthamoeba* lysates on HeLa cells implied by the rounding up of cells and detachment from the surface followed by complete disintegration of cell line. The number of HeLa cells was observed to decrease with increasing concentration of lysates used. The IC₅₀ value of lysates of *A.castellanii* and *Acanthamoeba sp.* are 10µg/mL and 12.60µg/mL, respectively. This study showed that lysate of *A.castellanii* more potent than lysate of *Acanthamoeba sp.* and has the potential as anti – cervical cancer agent in the future.